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BUSHMEAT TRADE AND WILDLIFE CONSERVATION IN MAKURDI METROPOLIS, BENUE STATE–NIGERIA

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ABSTRACT

This study was conducted to identify sources of bushmeat supply to Makurdi metropolis,wild animal species sold as bushmeat in Makurdi Markets and their conservation status and income from the sales of bushmeat Reconnaissance survey was carried out to identify major markets where bushmeat are sold and purposively selected. Data were collected through structured questionnaires, direct observation and personal interviews within selected target groups in the markets. 100 questionnaires were administered to bushmeat traders across six markets namely; High level, Modern market, North Bank, Wadata and Wurukum, Fidii. Data was analysed using Descriptive statistics such as tables, percentages, charts and figures to present data obtained from the study. A total of 1452 dry carcasses of 14 bushmeat species were encountered in the markets during the study period. Giant rat (Cricetomys gambianus) had the highest rate with 14.74% while the least is red duiker with 3.3%. Among the council wards surveyed Wurukum, has the highest numbers of bushmeat sellers (42%) while the least was Fiidi (5%).The conservation status of all the bushmeat encountered were least concern. The study also shows that there is high income from the sales of bushmeat Based on the findings it is recommended that there is need for wildlife conservation education to bushmeat sellers, provision of alternative livelihood and protein source, wildlife domestication should be encourage by bushmeat sellers to meet market demand, reviewing and enforcing the law, routine inspection of bushmeat stalls in the market. There is also need to also carry out research on bushmeat trade in other local government areas of the state.

Keywords: Bushmeat Trade, wildlife conservation, Consumption, Conservation status

INTRODUCTION

Wildlife trade is likely a major cause for the decline of wild fauna and flora worldwide. Global trade in wildlife and their products, estimated to be worth 11 to $15 billion (U.S.) annually and more than 30% could be illegal (Oldfield, 2002), second only to narcotics and illegal arms trade (Reeve, 2002). Bushmeat trade has long been recognized as a major threat to biodiversity in forest areas of Central and West Africa (Fa *et.al.*, 2003).Unsustainable harvests of bushmeat threaten not only the survival of the exploited species but also livelihoods of those people who depend on it(Brown,2003).

In many communities including Nigeria, bushmeat constitutes a large proportion of the animal protein being consumed and significant component of local and even national economies contributing significantly to food security(Bowen-Jones *et.al.*, 2003; Wilkie *et.al.*, 2008: Okiwelu, 2009: Tee *et.al*, 2012).

Bushmeat is by far the most expensive meat in many countries. Often the demand for bushmeat and the consequent prices are increasing much more than domestic meat. In many part of Africa the high demand for and the cost of bushmeat compared to other form of protein has created a situation where the hunter finds it more profitable to sell his catch rather than eat it. The income derived from hunting

is often spent on cheaper protein with savings used to meet other expenses.

Key drivers of illegal hunting and bushmeat trade include increase demand of bushmeat in rural and urban areas due to population increase, encroachment into wildlife areas, lack of enforcement, lack of alternative livelihood, lack of alternative food source, lack of clear rights over wildlife or land, and/or inadequate benefits from wildlife, Political instability, corruption and poor governance and demand for wildlife body parts for traditional medicine and ceremonies (Lindsey *et.al*., 2012) Trade in bushmeat and its impacts have not been given much attention in the savanna biome due to misconception that hunting for bushmeat is largely subsistence and is practiced on a limited scale (Barnett, 1998 and Lindsey et al. 2011).

In Nigeria one of the main objectives of wildlife management is bushmeat production to increase the animal protein available in rural and urban areas of the country with particular emphasis on rural areas. With the rate of decline in wildlife species in the country it is no longer visible, there is need for policy maker to review the objective to focus more on ecotourism which has alots of value chains.

The study was carried out to identify sources of bushmeat supply to Makurdi metropolis, wild animal species sold as bushmeat in Makurdi Markets and income from the sales of bushmeat and their conservation status.

MATERIALS AND METHODS

Study Area

This study was carried out in Makurdi metropolis Benue State, Nigeria. It is situated on latitude 6°22' and 7°56' to the North and longitude 7°37' and 9°05' east has a total area of 325km^2. The population of the inhabitants is about 300,317 people comprising 158,838 males and 141,479 females respectively (Tee *et al*, 2012). The inhabitants of Makurdi metropolis are predominantly civil servants however; fishing, trading and farming are the prominent occupations of the traditional inhabitants. Other people are involved in burnt bricks production and irrigation farming (vegetables) along the course of River Benue (Tee *et al*, 2012).

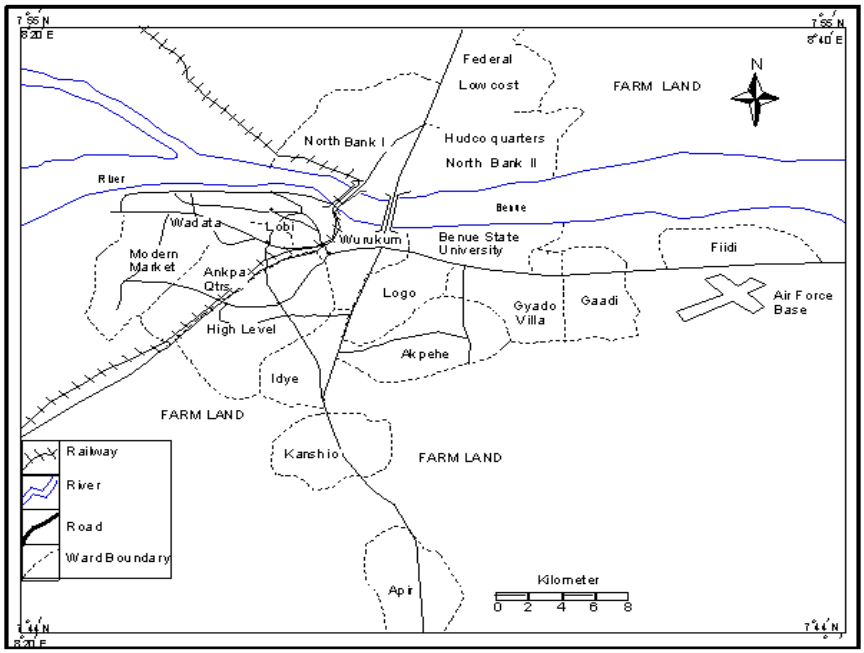

Figure 1: Map of Makurdi Metropolis
Source: Benue State Ministry for Land and Survey (2016)

Experimental Design

A reconnaissance survey was carried out to identify Major markets where bushmeat are sold in Makurdi metropolis and from this the number of questionnaires was deduced. Thereafter, six (6) markets in Makurdi metropolis, namely: High level, Modern, Northbank, Wadata, Wurukum, and Fiidi markets were selected based on the intensity of

bushmeat trade. Questionnaires were administered to a total number of hundred (100) bushmeat traders.

Data Collection

Data were collected through structured questionnaires, direct observation and personal interviews within the target groups. The detail of Happold (1987) Mammals of Nigeria was used for identification of bushmeat species. Data on number of difference species brought to the market were collected weekly.

Data Analysis

The data collected were processed into suitable format for analyses by Microsoft excel. Descriptive statistics such as tables, percentages, charts and figures were used to present data obtained from the study.

RESULTS

Demographic Characteristics of Bushmeat Traders

As illustrated in table 1 the result indicates that gender was 50% for both male and female respondents. More of the traders (49.0%) were single while (48.0%) were married. Most of the traders (57.1%) were between age brackets 31-40 followed by 41-50 (23.5%) and the least age was between 51- 60 (1.0%). Result also shows that most of the bushmeat traders (43.9%) were Secondary School Certificate holders while the least were Tertiary Certificate holders (13.3%). Most of the respondents were Christian (61.2%) with other forms of religion being the least (12.2%). On years of bushmeat trade experience; 57.1% of the respondents had between 1-5 years' experience trading on bushmeat while 2% had between 16-20 years' experience.

Table 1: Demographic Characteristics of Bushmeat Traders in the Study Area

Characteristics	Category	Frequency	%
Gender	Male	49	50.0
	Female	49	50.0
Marital status	Single	48	49.0
	Married	47	48.0
	Others	3	3.1
Age	20-30	18	18.4
	31-40	56	57.1
	41-50	23	23.5
	51-60	1	1.0
Educational status	Primary	15	15.3
	Secondary	43	43.9
	Tertiary	13	13.3
	Non-formal	27	27.6
Religion	Christianity	60	61.2
	Muslim	26	26.5
	Others	12	12.2
Years of experience	1-5	56	57.1
	6-10	31	31.6
	11-15	9	9.2
	16-20	2	2.0

Sources of Bushmeat supply to Makurdi metropolis

The result of the study revealed that bushmeat traders obtain bushmeat from four supply sources namely; Borno state 36%, Cross River state 26%, Adamawa state 20% and Kaduna state 18% respectively (Figure 2).

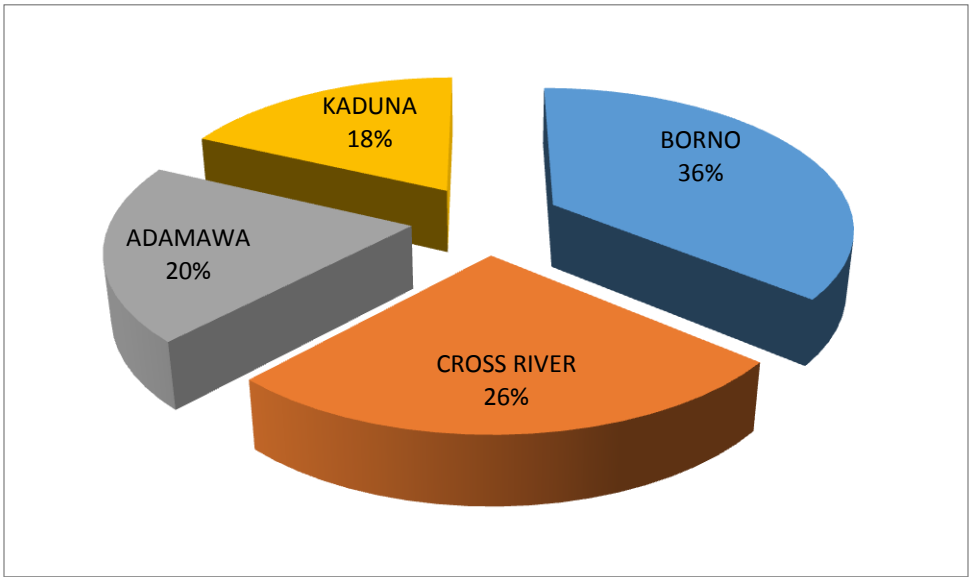

Figure 2: Sources of Bushmeat Supply to Makurdi metropolis

Bushmeat Species sold in Makurdi Markets

A total of 1452 dry carcasses of the 14 bushmeat species were encountered in the markets during the study period (Table 2). Giant rat (*Cricetomys gambianus*), representing 14.74% of the total bushmeat encountered dominated the bushmeat market while Red duiker *(Cephalophus caffer)* has the least encounter rate of 3.31%.The largest quantity of bushmeat (457) was offered for sale in Wurukum market during the study period while Fiidi market recorded the least quantity (82).

Table 2: Species encountered and their Distribution

S/NO	Species	Scientific Name	HLM	MM	NBM	WM	WRKM	FM	Total
1	Giant rat	*Cricetomy gambianus*	45	21	46	28	52	22	**214**
2	Monitorlizard	*Varanus indicus*	25	15	55	22	65	10	**192**
3	Grass cutter	*Thryonomysswinderianus*	22	24	21	14	63	14	**158**
4	Bushbuck	*Tragelaphus eurycerus*	22	14	31	20	45	10	**142**
5	Rabbit	*Sylvilagus brailiensi*	18	10	13	20	42	4	**107**
6	Alligator	*Alligator mississippinsis*	23	8	11	15	32	2	**93**
7	Civet Cat	*Civettictis civetta*	9	7	22	18	31	1	**88**
8	Squirrel	*Funiscuirus pyrrhopus*	22	6	11	12	26	4	**81**
9	Porcupine	*Hystrix cirstata*	14	7	12	15	22	9	**79**
10	Guinea fowl	*Numida meleagris*	33	18	5	8	10	2	**76**
11	Baboon	*Cercopithpus acthiops*	10	10	8	21	16	3	**68**
12	Wild dog	*Lycaon pictus*	11	2	14	12	16	0	**55**
13	Patasmonkey	*Erythrocebus patas*	6	4	8	13	20	0	**51**
14	Duiker	*Philantomba maxwellii*	2	9	11	8	15	1	**48**
			264	**155**	**268**	**226**	**457**	**82**	**1452**

HLM: High level market; **MM**: Modern Market; **NBM**: North Bank Market; **WM**: Wadata Market; **WRM**: Wurukum Market; **FM**: Fiidi Market

Table 3: Species encountered and their conservation status

S/No	Species	Scientific Name	Conservation Status
1	Giant rat	*Cricetomy gambianus*	Least Concern
2	Monitorlizard	*Varanus indicus*	Least Concern
3	Grass cutter	*Thryonomysswinderianus*	Least Concern
4	Bushbuck	*Tragelaphus eurycerus*	Least Concern
5	Rabbit	*Sylvilagus brailiensi*	Least Concern
6	Alligator	*Alligator mississippinsis*	Least Concern
7	Civet Cat	*Civettictis civetta*	Least Concern
8	Squirrel	*Funiscuirus pyrrhopus*	Least Concern
9	Porcupine	*Hystrix cirstata*	Least Concern
10	Guinea fowl	*Numida meleagris*	Least Concern
11	OliveBaboon	*Papio anubis*	Least Concern
12	Wild dog	*Lycaon pictus*	Least Concern
13	Patasmonkey	*Erythrocebus patas*	Least Concern
14	Duiker	*Philantomba maxwellii*	Least Concern

Table 4: Species encountered and their prices

S/No	Species	Scientific Name	Prices(Naira)
1	Giant rat	*Cricetomy gambianus*	1500-3000
2	Monitorlizard	*Varanus indicus*	2000-4000
3	Grasscutter	*Thryonomysswinderianus*	6000-12000
4	Bushbuck	*Tragelaphus eurycerus*	6000
5	Rabbit	*Sylvilagus brailiensi*	1500-3000
6	Alligator	*Alligator mississippinsis*	2000-4000
7	Civet Cat	*Civettictis civetta*	4000
8	Squirrel	*Funiscuirus pyrrhopus*	2000
9	Porcupine	*Hystrix cirstata*	3000
10	Guinea fowl	*Numida meleagris*	2000
11	Baboon	*Cercopithpus acthiops*	8000
12	Wild dog	*Lycaon pictus*	2000-4000
13	Patasmonkey	*Erythrocebus patas*	9000
14	Duiker	*Philantomba maxwellii*	5000

Table 5: Market interview of bushmeat traders in the study area

Characteristics	Category	Frequency	%
Who are your customers	Restaurant	40	40.8
	Drinking bars	37	37.8
	Household	18	18.4
	Traditional medicine	3	3.1
What determines the price	Species	27	27.6
	Size	46	46.9
	The season	25	25.5
What season do you have more supply	Wet	26	26.5
	Dry	72	73.5
Do Government agents inspect the bushmeat you sell?	Yes	36	36.7
	No	62	63.2
Aware that some wild animals are protected by laws?	Yes	57	58.2
	No	41	41.8

DISCUSSION

The variety of wild animal species encountered during the study agrees with the results of previous study by Tee *et.al*.,(2012). However, the species encountered during this survey differ from some of the previous research.14 bushmeat species were encountered in the markets during the study period (Table 1). Giant rat (*Cricetomys gambianus*), representing 14.74% of the total bushmeat encountered dominated the bushmeat market while Red duiker *(Cephalophus caffer)* has the least encounter rate of 3.31%. Wurukum market had the largest quantity of bushmeat (457) while Fiidi Market recorded the least quantity (82). The high numbers of giant rat carcasses were probably attribute to their high productive rate (Happold, 1987; Okiwelu *et.al*., 2009)Survey of markets across West Africa show that commonly traded bushmeats are smaller mammals and bird species which is as the result of an extinction filter with vulnerable taxa such as primates and large mammals have been historically depleted (Cowlishaw *et.al.,* 2005 and Oyegbami*et.al.,* 2018) This results indicated that traders in Makurdi get their bushmeat supply from Borno, Cross-River, Adamawa and Kaduna states which agrees with Newmark, (2008) that wildlife is rapidly disappearing from unprotected lands, due to a wide array of threats and as a result, illegal hunters are increasingly focusing their efforts on protected areas. The four states the traders source their bushmeat from have a national park. It also agrees with Tee *et.al*.,(2012) that the supply of bushmeat to Makurdi from these states means that the wildlife population in Benue state has perhaps dwindled abysmally and can no longer withstand the demand level and the protected.

The price of each bushmeat depends on the size of the bushmeat, species of bushmeat, availability and preferences by consumer and it cut across all class of people which agrees with Oyegbami *et.al*.,(2018). Since there is profit in bushmeat trade, it will encourage the traders to remain in bushmeat trade as a means of livelihood. However, as demand for bushmeat continue to increase and the traders remain in business, the pressure on wildlife resources would likely threaten their sustainability (Fa, 2000; Fa, 2003; Brown and Williams, 2003, Tee *et.al*., 2012; Oyegbami *et.al*., 2018).Regarding their conservation status, all the bushmeat species encountered during the research was listed least concern under IUCN conservation status. it is possible that there is local extinction of threatened species which is in line with Brashares *et.al*.,(2001) that bushmeat extraction in Africa is exceptionally high and West Africa in particular is noted for severe hunting of game (animals) leading to extinctions of some animal species. It could also be as a result of awareness that some wild animals are protected under law although most of the bushmeat

traders said government inspection team rarely comes around

CONCLUSION AND RECOMMENDATIONS

Trade in bushmeat is a serious threat to biodiversity in Nigeria. There are so many factors that contribute to the decline. It is important to create awareness on the need for conservation to bushmeat sellers, provision of alternative livelihood and protein source, wildlife domestication should be encourage amongst bushmeat sellers to meet market demand, reviewing and enforcing the law and routine inspection of bushmeat stalls in the market. There is also need to also carry out research on bushmeat trade in other local government areas of the state.

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